

# CROP PRODUCTION NEWS

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## CROPS

### Editor's Comments

By Faye Dokken-Bouchard, PAg, Crops Branch

While seeding progress has been variable across the province this week, most growers continue to think about seeding and spraying and what to expect as some crops start to emerge.

Seed testing labs reported an increase of seed-borne diseases and quality issues this winter. Pathogens will also be present in the soil and crop residue. As a result, many growers have applied a seed treatment as a first line of defence this spring. This is a great way to protect against some early season disease issues, but the battle is not over. Seed treatments do not eradicate disease and protection beyond the seedling stage will be limited. Continue to scout crops for stressed plants and seedlings. For more information, see the fact sheets *Plant Disease Scouting 101* and *Plant Disease Control: to Spray or not to Spray*.

Another thing to think about this spring is spray water quality. Hard water ions antagonize glyphosate and 2,4-D amine while bicarbonate ions antagonize 2,4-D amine and Group 1 'dim' herbicides. In surface water, levels of these ions are generally low. However, levels of suspended solids (clay or organics) may be higher. These can bind many herbicides. Cloudy water will require flocculation treatment before use in the sprayer. Surface waters also support rapid algal growth. Water can be treated with copper sulphate and storage containers should have black liners. Neither copper sulphate nor flocculants antagonize herbicides. Information on water quality and herbicides can be found in *Water Quality and Herbicides* on the Saskatchewan Agriculture website and *On-Farm Coagulation* from Agriculture and Agri-Food Canada's Agri-Environmental Services Branch.

**NOTE:** Throughout this document, you will see that some publications are in blue font and underlined, indicating links to website information. If you are reading this on your computer screen, click your cursor on the link to take you directly to the website. ☀

*Crop Production News* is a bi-weekly publication prepared primarily by provincial specialists with the Crops Branch and Regional Services Branch of the Saskatchewan Ministry of Agriculture. It is a compilation of articles related to entomology, plant pathology, weed science, soils and agronomy issues.

Please do not use any of these articles for any other purpose without first asking the author's permission.

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# Crop Protection Laboratory Update

By Philip Northover, AAg, Supervisor, Crop Protection Laboratory

Spring must be finally upon us, as the first submissions of the year have arrived at the Crop Protection Laboratory.

Native weeds that are not usually observed in crop land have been identified in weed submissions this spring. These include a species of *Potentilla* (likely *P. palustris* or marsh cinquefoil) and *Viola adunca* (early blue violet). Higher moisture conditions from last year may be contributing to these weeds being more apparent in crop land. A sample of *Capsella bursa-patoria* (shepherd's purse) was also identified in the past week.

Winter wheat submissions have been the only plants submitted for disease identification so far, which isn't unexpected at this time of the season. Spot blotch (*Bipolaris sorokiniana*) is more common and severe on barley but this leaf spotting disease has been identified on winter wheat samples at the lab. Symptoms suspected to be wheat streak mosaic virus have also been observed.

For 2011, there have been changes to the submission forms. The CPL is experimenting with electronic forms that replace the previously "all in one form". Currently electronic forms for herbicide resistance and weed identification are posted on the Ministry website. Electronic forms for insect and plant disease submissions will also be available in the near future. Until then, producers should still use the standard form. Submitters are encouraged to use these new forms, print them off, and send them with the sample. ☀



For information about submitting samples to  
Saskatchewan Agriculture's Crop Protection  
Lab go to:

[www.agriculture.gov.sk.ca/Crop\\_Protection\\_Lab](http://www.agriculture.gov.sk.ca/Crop_Protection_Lab);  
or phone (306) 787-8130.

# Agriculture Knowledge Centre Update

By Brent Flaten, PAg, Integrated Pest Management Specialist

Pre-seed burnoff continues to be the focus of seeding related calls over the past couple of weeks at the Agriculture Knowledge Centre (AKC). These calls include questions about options prior to planting crops such as canola, flax, and oats. Tables 14a and 14b on page 49 of the *2011 Guide to Crop Protection* summarize herbicide options before seeding or after seeding, but prior to crop emergence.

Common inquiries regarding control of specific weeds have included white cockle, cleavers, absinth, dandelions, alfalfa, foxtail barley and annual bromes (downy and Japanese). The AKC specialists have also been assisting with an increased number of weed identifications recently. Weed, disease or insect specimens can also be identified by sending samples to the Crop Protection Lab at 346 McDonald Street, Regina, SK S4N 6P6, or dropping a plant sample off at one of our Regional Offices.

Light frosts at night have been a concern for continuing with pre-seed burnoff. After a light frost of about -1 to -2 C, pre-seed burnoff may proceed once the temperature warms up to 6 to 8 C and frost isn't forecast for that night again. A more severe frost of about -5 C requires waiting for several days to assess frost injury and a return to healthy plant growth. A useful tip is that if the night time temperature is forecast to fall below 8 C, stop spraying a couple hours before sunset. This allows extra sunlight and warmth to facilitate herbicide translocation.

Spring frost can also affect crops in which the growing point is above ground, making them very susceptible to frost or other injury. For more information on determining whether canola plants can recover from spring frost, see the Canola Council of Canada website for the fact sheet *Tips for Assessing Spring Frost Damage in Canola*. Producers are also concerned about days to maturity of certain crops and varieties, given the potential frost free days remaining this season.

This year we're receiving more questions about re-cropping restrictions after applications of residual herbicides in 2010 such as Odyssey or Pursuit. In some cases, people have assumed that with all the moisture last year, these restrictions can be ignored. Regardless of weather conditions the previous season, re-cropping restrictions should always be adhered to.

In regards to insects, most questions have been about identifying and controlling wireworms and cutworms. The only wireworm control available is with the seed treatments Cruiser Maxx and Raxil WW. Cutworms can be controlled with a foliar insecticide after seeding. For more information see *Economic Thresholds of Insect Pests*.

Soils related questions continue to revolve around nutrient requirements for crops, types of fertilizer, methods of application, and maximum safe seedrow fertilizer rates. See the publication *Guidelines for Safe Rates of Fertilizer Placed with the Seed* on the Ministry website for more information.

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## Agriculture Knowledge Centre Update (Continued from page 3)

Forage producers have been phoning in regards to forage stand termination. Trying to spray out perennial legumes with glyphosate at this time of year is challenging with often poor results. Spraying glyphosate pre-harvest later in the season, followed by a glyphosate plus 2,4-D amine on fall re-growth is a recommended alternative strategy. ☀

# Keep the Starter Phosphate Rates Up and Start Looking for Sulphur Deficiencies in early seeded Canola

By Ken Panchuk, PAg, Provincial Specialist, Soils

Hastening crop maturity starts with early season agronomy. To accomplish this, producers may consider increasing their seeding rate, seeding shallow, and adding starter phosphate fertilizer.

Establish plants sooner to hasten maturity. Phosphate is needed for early, healthy root development, and is particularly important for late seeded crops. Plants need a bit more phosphate at the end of May and into June because of rapid growth resulting from good to excellent soil moisture and long day length. Phosphorus, which is essential for cell division and energy transfer within plant tissue, becomes very important during rapid growth. Sluggish plants in June can translate into delayed maturity.

Plants require oxygen from pores in the soil for proper root function and respiration. However, wet conditions fill these pores with water instead of air, which can reduce or restrict root growth. It then becomes more important than ever to have enough phosphate starter fertilizer with or near the seed.

Similarly, a deficiency of sulphur can delay canola and mustard maturity. Keep in mind that sulphur is not translocated within plants so a supply of plant-available sulphur is required during all growth stages including the seed filling stage. However, if plant-available sulphate-sulphur was not applied at seeding, ammonium sulphate can be broadcast anytime after seeding up until the flowering stage of canola. The earlier growth stage the sulphate-sulphur is applied the better the chance of optimizing yield and minimizing delayed maturity.

For those who use liquid fertilizer, ammonium thiosulphate (ATS) can be dribble banded anytime from seeding to bolting. However, leaf scorching can occur at advanced stages of canola development because ATS has a high salt index.

For details, see the Ministry of Agriculture website for the fact sheets *Phosphorus Fertilization in Crop Production* and *Sulphur Fertilization in Crop Production*. ☀

# Stick to Appropriate Pesticide Uses

By Clark Brenzil, PAg, Provincial Specialist, Weeds

The Pest Management Regulatory Agency's (PMRA) policy on unlabelled pesticide mixes provides producers with expanded options for pest control. This policy allows the use of combinations of pesticides that would not otherwise be provided on the product labels. However, this does not mean that mixes of products can now be applied to uses that fall beyond the original registration of the products being mixed.

Here are a few points to give a quick overview of the PMRA policy for unlabelled pesticide mixes:

- Ensure that both components are already registered for the intended use pattern. Crops for which the mixes are to be used must appear on both labels. Target pests must appear on at least one of the labels.
- There must be common application timing on each component product label, including crop stage. If the label timing of the two pesticides does not overlap, the mix is not appropriate under the policy. For example, an in-crop product cannot be applied during the burn-off timing or as a pre-harvest treatment just because the product to be mixed with includes these timings.
- Adjuvants added to the mix must be required by at least one of the components. Adjuvants specifically prohibited by one product may not be used. If the two component products of a mix require the same adjuvant, but do not share common adjuvant rates, the mix is not allowed by the PMRA policy.
- Use the most limiting application restrictions or parameters of either component label (i.e. minimum water volume, pre-harvest interval, buffer distances, etc).
- Unlabelled pesticide mixes must not be specifically prohibited on either label. The general statement appearing on many pesticide labels that reads "**Do not mix with any other products other than those listed on the label**" is considered a specific prohibition.
- Unlabelled pesticide mixes must provide additional value to the user and are used at the risk of the user.
- It is always good policy to consult with manufacturer policies on which mixes they support.

Appropriate pesticide uses must be followed when considering a mixture for control of challenging weeds. Examples of inappropriate recommendations that have come to our attention recently include the use of glyphosate + Assure II mixture or a mixture of glyphosate + Heat for the control of established perennial forages. Neither of these uses is allowed under the PMRA Pesticide Tank Mixing Policy. Aside from the lack of registration for control of perennial forage, these mixes will not provide additional value to the producer when compared to spending the same amount of money on additional glyphosate. While the mixture of glyphosate and Heat is registered for burn-off treatment, the mix was never intended to be used to terminate perennial forage stands and as a result is not likely to be effective. Some mixes can result in antagonism of one or both of the components. Always check with the manufacturers for a written list of non-labeled mixes they will support.

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## Stick to Appropriate Pesticide Uses (Continued from page 5)

In addition, it is also important that pesticides are only used for the purposes and crops that they were intended. As has been reflected in the media recently, foreign buyers are expressing a very low tolerance of any non-registered pesticide residues or elevated levels of registered pesticides in shipments of crop commodities. Shipments containing such residues may be rejected at the foreign port as a result.

Not applying pesticides to crops that are not on the label should be obvious, given the comments above, but is worth repeating. However, with the increased number of generics and co-packs on the market, special attention must be given to statements on the product label that limit the number of applications of a product that can be made per season. This information is repeated in the *Guide to Crop Protection*. Agronomist and producers should be aware that these restrictions refer not to the product brand but to the repeated use of the active ingredient in a single season. Some labels will give a maximum total application rate as well as a single application maximum to indicate the total amount of active ingredient that may be applied to the same crop. Repeated use of the same active ingredient in a crop not only increases the risk of selection for resistance in the target pest to that active, but also increases the risk of elevated residues of that active ingredient in the harvested crop.

The regulatory system for pesticides is in place to protect both the consumer from exposure to pesticides in their diet, but also protects producers from market barriers that might be put in place by foreign buyers to leverage lower purchase prices for Canadian commodities. ☀

## Agriculture Knowledge Centre

Hours: 8 a.m. to 5 p.m. Monday to Friday  
Phone: 1-866-457-2377

Got a question?

E-mail: [aqinfo@gov.sk.ca](mailto:aqinfo@gov.sk.ca)

Want to submit your question online?

Go to our [Ask Saskatchewan Agriculture](#) form page.

# Thoughts on Changing Rotations Due to Seeding Conditions

By Elaine Moats, Regional Crops Specialist, Weyburn

Crop rotations are part of a long-term farm management plan. They are invaluable tools to maintain or improve soil fertility, and manage weeds, diseases and insect pests. They should contribute to a higher net income over time. Crop rotations tend to be based on following a cereal crop with a broadleaf, then back to cereal to maintain organic matter and build soil fertility. To manage disease, weeds and/or insect pests, some producers plan to grow a specific crop, such as wheat or pea, no more than once every four years on a specific field. The challenge for

maintaining a crop rotation comes when the value of one crop far outweighs another, or if seeding conditions are such that the right crop can't be seeded in the right field at the right time.

So what happens to the crop rotation when seeding is delayed due to excessive moisture? That depends on the field.

Crop rotations are a risk management tool. If the planned crop can't be planted, the risks of seeding and managing a different crop must be weighed. Remember, "doing the wrong thing right is better than doing the right thing wrong."

Fertility is a very important issue to consider. Ken Panchuk, Provincial Specialist, Soils has these thoughts:

- *Maintain starter phosphate fertilizer rates without exceeding the rates applied with the seed to promote healthy root and shoot growth.*
- *Nitrogen can go on as side-band, mid-row band, or in a split application to meet the realistic target yield for the chosen crop.*
- *Seed shallow with light on-row packing.*
- *Bump up the seeding rates to hasten maturity.*
- *Use the best seed source you can find.*

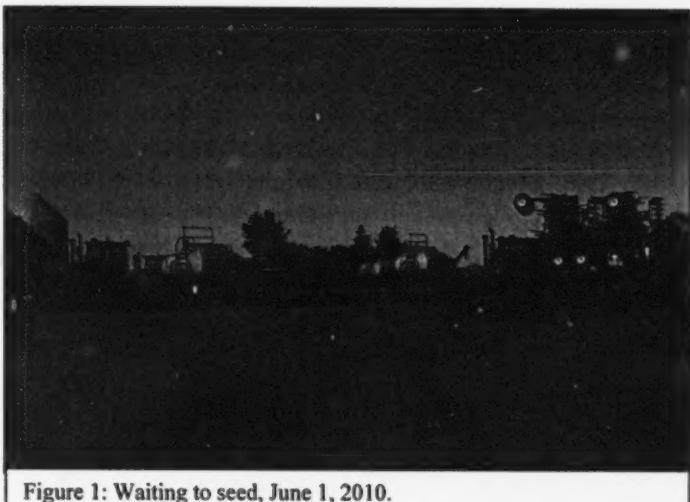


Figure 1: Waiting to seed, June 1, 2010.  
Source: Saskatchewan Agriculture

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## Thoughts on Changing Rotations Due to Seeding Conditions (Continued from page 7)

Weed control is another very important factor when considering a change of crop. Clark Brenzil, Provincial Specialist, Weeds shares these thoughts:

- *Make sure that there is no risk of herbicide residues that can damage the crop. Past herbicide treatments include fall or burn-off treatments that have been completed for the current season. These might include fall applied Edge that could damage a cereal crop or Prepass applied prior to a broadleaf crop.*
- *Are there herbicide options available for the crop that you want to change to? Will these herbicides control the spectrum of weeds in that field?*
- *When seeding is delayed, place a high priority on completing burn-off treatments when the weather allows, even if it delays seeding. Delaying burn-off treatments can increase the cost due to the higher rates required and may also result in a significant yield penalty from weed competition.*
- *With delayed seeding make sure that the burn-off rates match the size of the weeds in the field at the time of the application. Glyphosate rates change dramatically going from three-inch tall weeds to those greater than six inches.*

Other considerations for switching crops include the nature of the stubble crop. For example, canola has a tremendous volunteer potential that can lead to season-long weed control issues. When tightening rotations, disease management may also need to be intensified because pathogen-infested crop residue has less time to break down.

Canary seed has a very shallow root system and can't handle drought or water-logged soils. Flax doesn't like wet feet either but the grading system may accommodate frost damage better than some other crops. Seed quality issues are important for market acceptance, so be sure your flax seed is properly tested and certified before seeding.

Farmers are well equipped to seed crops quickly and when seeding is delayed they often overcome amazing odds to get the crop in. That said, maintaining safe operations and trying to do what's within reason is important. ☺

## The Effect of Wet Soils on *Rhizobium* Bacteria

By Dale Risula, PAg, Provincial Specialist, Special Crops

Pulse crop growers should be aware of the detrimental effects *Rhizobium* bacteria could have on pulse crops that are planted into cold and wet soils this spring. *Rhizobium* bacteria are responsible for the symbiotic or mutually beneficial process of nitrogen fixation in pulse crops. This process allows unusable nitrogen in the soil atmosphere to be converted into available forms that the plant can assimilate into proteins. The change in form of nitrogen from unavailable to available is known as "fixing" soil N.

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## The Effect of Wet Soils on *Rhizobium* Bacteria

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*Rhizobium* bacteria are living organisms so they require suitable environmental conditions to function most efficiently. Oxygen levels and temperature are important parameters for bacterial growth. If they are outside of normal or average growth requirements the activity level or survivability of the organism may be compromised.

Wet and cold soils are not conducive for optimal functioning *Rhizobium* bacteria. If these conditions persist for too long, the efficacy of biological symbiosis between the pulse plant and *Rhizobium* bacteria diminishes.

Currently, the theory to alleviate this problem lies in the idea that delivering more bacteria to the rooting zone at the time of seeding or planting. This may provide more *Rhizobium* bacteria availability when the plant begins forming nodules. This is something that could be controlled by the producer by selecting for qualities allowing for increased survivability of bacterial populations.

Qualities may include:

- Total amount of *Rhizobium* bacteria per milligram or millilitre of product;
- Rate of application of inoculant to the seed or to the soil;
- With dry seed applied products, the adhesion level of the product to the seed;
- The number of seeds per unit weight of the seed being planted; and
- The seeding rate per unit of the area.

Dry or liquid in-furrow application is the recommended method of applying inoculants to provide the highest count of *Rhizobium* bacteria at the time of seeding. Research in western Canada compared various methods of application for different inoculant types. In-furrow applications provided the best results. Therefore, in conditions of stress or first year legume production, application of in-furrow inoculants may provide the best results.

To check your pulse crop for nodulation success, wait approximately three weeks after crop emergence. Bring a shovel to unearth the roots so that damage to the roots is minimal. Nodules can easily be sloughed off each root hair if handled too abrasively. On average, nodules should be developed at this time. Healthy, functioning nodules will be pink in colour. ☺

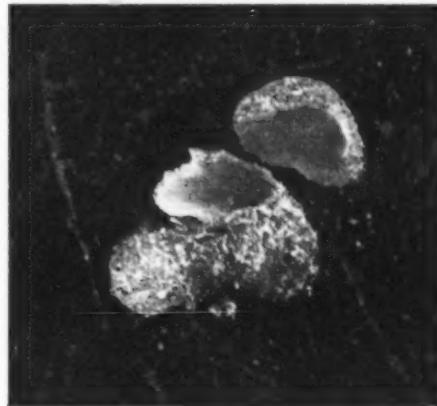


Figure 2: Healthy nodule.  
Source: Saskatchewan Agriculture.

# What is the Crop Report?

By Daphne Cruise, Regional Crops Specialist, Moose Jaw

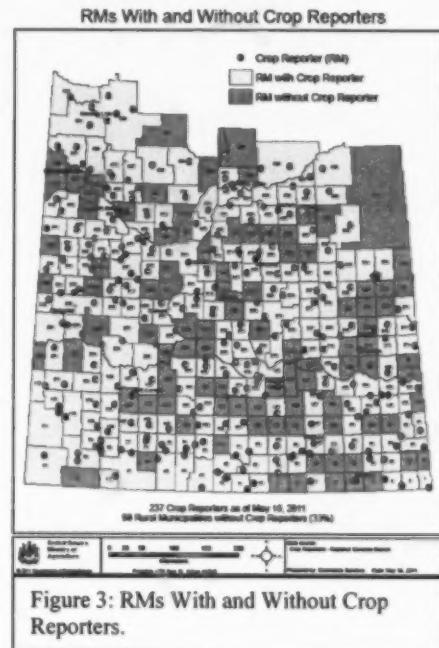
The Saskatchewan Ministry of Agriculture has a team of dedicated and valued volunteer crop reporters who report weekly activities and updates from the agriculture community during the busy farming months. The Crop Report is published weekly and utilized by many people in the agriculture industry.

Each week from April to October, crop reporters provide progress on seeding, haying and harvest. They also predict topsoil moisture conditions, yields and grades, as well as record precipitation for their area and more. The weather and growing conditions can vary greatly from one end of a rural municipality (RM) to the next. Currently, there are 298 crop reporters representing 200 RMs. There are 98 RMs that do not have a crop reporter.

Ideally we could have one crop reporter for each RM. If more reporters are interested, we welcome the participation, as some RMs have up to four crop reporters. The map shows areas in the province where we have crop reporters, and areas where crop reporters are needed. As the areas without a crop reporter are filled, the information collected and reported during the growing season will become more inclusive and precise, resulting in a more accurate description of what is going on throughout the province.

If you are interested in becoming a crop reporter for the Ministry of Agriculture, have a look at the map – a valued crop reporter may be needed in your RM.

For more information: Contact the Agriculture Knowledge Centre- 1-866-457-2377  
To read the Crop Report, see  
[www.agriculture.gov.sk.ca/Crop-Report](http://www.agriculture.gov.sk.ca/Crop-Report) ☺



# Who's Who in the Crops Group at the Agriculture Knowledge Centre

By Brent Flaten, Integrated Pest Management Specialist, Agriculture Knowledge Centre

The crops group at the Agriculture Knowledge Centre provides agriculture information and advice to farmers, ranchers, crop advisors and others in the agriculture industry on crop and forage production, new research and technology, and various government programs.

The Agriculture Knowledge Centre is committed to providing expert technical information and excellence in client service, delivered by friendly and experienced staff. We also work closely with provincial and regional specialists from across the Ministry of Agriculture. You can phone us by using the following toll free line: **1-866-457-2377**.



**André Bonneau, PAg – Forage Management Specialist**

Email: [andre.bonneau@gov.sk.ca](mailto:andre.bonneau@gov.sk.ca)

André has a Bachelor of Science in Agriculture from the University of Saskatchewan, with a major in rangeland resources. He worked for several years as a forage and livestock agronomist with the Battle River Research Group in Camrose, Alberta and more recently with the United Farmers of Alberta in Stettler. As forage management specialist, André is a source of information for producers and the agriculture industry on forage selection, establishment, renovation, harvesting, economics and grazing management.



**Brent Flaten, PAg, CCA – Integrated Pest Management Specialist**

Email: [brent.flaten@gov.sk.ca](mailto:brent.flaten@gov.sk.ca)

Brent has a Bachelor of Science in Agriculture from the University of Saskatchewan, majoring in agronomy. He grew up spending summers at his family's farm near Weyburn. Brent has a wide variety of work experience in both private industry and government across the Prairies. He has worked in the crop protection industry, in an extension role with Alberta Agriculture and Rural Development, and as a crop specialist with Agricore United and Viterra. Brent's primary focus is integrated pest management of weeds, diseases and insects. Other areas of interest include general crop, soil and nutrient management.

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## Who's Who in the Crops Group at the Agriculture Knowledge Centre (Continued from page 11)

### Grant McLean, PAg – Cropping Management Specialist

Email: [grant.mclean@gov.sk.ca](mailto:grant.mclean@gov.sk.ca)



Grant brings a wealth of professional and personal experience to the job. He graduated from the University of Saskatchewan with a Bachelor of Science in Agriculture majoring in soils and plant ecology. Grant worked in the Ministry's Agriculture Extension Office at Carnduff in 1973 when it opened, and continued to work there until joining the Agriculture Knowledge Centre. During his time in southeast Saskatchewan, he worked extensively with the sunflower industry and served for several years as member of the National Sunflower Association. Grant helps producers with a broad range of questions and concerns related to cropping choices, rotations, general crop management, organic crop production, and is the new face of the Crop Report.

### Patrick Mooleki, PAg – Soil/Nutrient Management Specialist

Email: [patrick.mooleki@gov.sk.ca](mailto:patrick.mooleki@gov.sk.ca)



Patrick holds PhD and Master of Science degrees from the University of Saskatchewan, an MBA degree from the University of Regina, and a Bachelor of Science degree from the University of Zambia. His PhD studies and research focused on pulses in crop rotations in Saskatchewan, and he subsequently worked with the University of Saskatchewan, Department of Soil Science, on livestock manure management and fertilizer application. His M.Sc. research studies focused on nitrogen and phosphorus management. He has also worked as a consultant and lecturer in Saskatchewan and as a manager of a research centre in Zambia. Patrick has worked with the Agriculture Knowledge Centre since 2004, first as a crops specialist and now as a soil/nutrient management specialist. Patrick's focus is on the soil-crop interface including the areas of soil management, soil conservation, soil fertility and organic and inorganic fertilizers. ☺

The *Crop Production News* is a publication of the Crops Branch, Saskatchewan Ministry of Agriculture.

**Editor:** Faye Dokken-Bouchard;

Phone: (306) 787-4671;

e-mail: [faye.dokkenbouchard@gov.sk.ca](mailto:faye.dokkenbouchard@gov.sk.ca)